Remarks/Arguments

Applicant wishes to thank Examiner Chu for his time spent in a telephonic interview with Applicant's representative. Claims 1 and 3-17 are currently pending. Claims 1, 3-5, 7-12 and 14-17 are amended. Such amendments do not add new matter. Specifically the amendments of Claims 1, 3-5 and 7-11 correct several typographical errors discovered during the preparation of this response, as well as to remove redundant language and references to the various formulae in the several claims. The amendments to Claim 12 are a result of the aforementioned telephonic interview during which Applicant's representative understood Examiner Chu to suggest that claims directed to a method of making a composition might be more favorably received. Claims 14-17 are amended to conform to the amendments of Claim 12. Support for the amendments of Claim 12 are found in the specification in paragraphs [0063] through [0069]. Reconsideration of the pending claims in view the aforementioned amendments and the remarks below is respectfully requested.

Rejection Under 35 U.S.C. §112

The Examiner states that Claims 1-8 stand rejected under 35 U.S.C.§112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully traverses.

Applicant again makes note that the Examiner's statement that Claims 1-8 are rejected is problematic since Claim 2 was canceled in Applicants' response the first action provided by Examiner Thornton, hence such claim is no longer pending in the instant application. Applicants' response to the instant rejection therefore assumes that Claims 1 and 3-8 stand rejected under 35 USC §112.

The Examiner states in the current action that the Declaration of Dr. Andrew Bell was carefully considered but that the rejection under

§112 maintained. Specifically the Examiner states that despite Dr. Bell's Declaration, "one attempting to avoid infringement would not know the metes and bounds of the claimed scope." Applicant respectfully disagrees and respectfully requests that the Examiner reconsider such Declaration. Specifically, as Dr. Bell pointed out on page 4 of his remarks, the more then 75 years of Diels-Alder reaction data that is readily available to a skilled artisan makes the expected isomer ratio of any such reaction either well known by such an artisan or readily available. Further, even if such data is not known or available from literature sources, the isomer ratio is readily determined by such an artisan. Thus where Claim 1 recites "the expected exo isomer mole percent for the polycyclic olefin monomer from which the repeat unit is derived, such expected exo isomer mole percent based on the thermodynamic equilibrium of the isomers of such monomer that are obtained from a Diels-Alder reaction used to form such monomer" this expected exo isomer ratio is either known or readily available without the need for undue experimentation. Thus such an exo mole percent is NOT indefinite.

With regard to "a polymer having a desired dissolution rate" Applicant respectfully asserts that this limitation is also NOT indefinite. It is well known to an artisan that the contrast ratio of a photoresist is dependent on, among other things, the difference between the dissolution rate of exposed regions and unexposed regions. The teachings of the instant application and its claims, for example Claim 1, provide a tool for increasing the difference between these two dissolution rates and thus increasing the contrast ratio of a photoresist composition. Thus an artisan can make a first polymer composition using a monomer having the expected exo isomer mole percent, measure the dissolution rates and if these are not what is desired, make a second composition using a monomer with an appropriately different exo isomer mole percent. Certainly this simple process for

reaching a desired exo isomer mole percent does not require undue experimentation. Thus the metes and bounds of the claimed embodiments of the present invention can be readily determined.

Therefore in view of Dr. Bell's Declaration and the argument presented above, Applicant requests that the rejection of Claims 1 and 3-8, under 35 USC §112 be withdrawn.

Rejections Under 35 U.S.C. §102(b) and (e)

Kinsho et al. (US 6,284,429)

The Examiner states that Claims 1, 3 and 4 stand rejected under 35 U.S.C. §102(b) as being clearly anticipated by Kinsho et al (US 6,284,429 B1, hereinafter "Kinsho"). Applicant traverses.

It is well established (see, MPEP §2131) that where a claim of an application being examined are alleged to be anticipated by a prior reference, such reference must provide a disclosure of each element or limitation presented in the claim for which such a rejection is alleged.

As currently amended, Claim 1 recites:

> A photoresist composition comprising a polymer having a desired dissolution rate, said polymer comprising at least one repeat unit derived from a polycyclic olefin having a desired exo mole percent, where the desired exo mole percent is greater than or less than the expected exo isomer mole percent for the polycyclic olefin monomer from which the repeat unit is derived, such expected exo isomer mole percent based on the thermodynamic equilibrium of the isomers of such monomer that are obtained from a Diels-Alder reaction used to form such monomer.

Kinsho teaches that certain acid labile protecting groups known at the time Kinsho was filed were unsatisfactory:

> Exemplary acid eliminatable protective groups include tert-butoxycarbonyl (JP-B 2-27660), tert-butyl (JP-A 62-115440, JP-A 5-80515, and J. Photopolym. Sci. Technol. 7 [3], 507 (1994)), 2-tetrahydropyranyl (JP-A 2-19847, 5-80515 and 5-88367), and 1-ethoxyethyl (JP-A 2-19847 and 4-215661). While it is desired to achieve a finer pattern rule, none of these acid eliminatable protective groups are deemed to exert satisfactory performance. (see, Background)

Kinsho teaches that alternate protecting groups that "employ an exo-form 2-alkylbicyclo[2.2.1]heptan-2-yl group or derivative" (col.6 lines 31-34) provide a solution to what he states is a problem with the prior art.

Kinsho DOES NOT recognize, teach or even suggest that there is a desired exo mole percent of material he teaches and in particular that such a desired exo mole percent might differ from the 100% exo mole percent implied by the statement of column 6 provided above. Further, embodiments of the instant invention, for example see Claim 4, recite a desired exo mole percent that is LESS THAN the expected exo mole percent of the monomer. This recitation is exactly opposite what Kinsho teaches and CANNNOT be said to be anticipated by Kinsho.

Therefore, Applicant respectfully asserts that Kinsho does not meet the required standard of a rejection under §102(b) as stated in MPEP §2131, and the current rejection of Claims 1, 3 and 4 must be withdrawn. Such action is earnestly requested.

Shin et al. (US 2003/0004289)

The Examiner states that Claims 1, 3 and 4 also stand rejected under 35 U.S.C. §102(e) as being clearly anticipated by Shin et al (US 2003/0004289 A1, hereinafter "Shin")). Applicant traverses.

Specifically, the Examiner states that despite Shin making no mention of any subsequent processing or "clean-up" of the monomer

formed in Production Example 2, that such processing or "clean-up" would be a matter of course that would change the isomer ratio reported for the monomer in paragraph [0059] of Shin. Applicant respectfully asserts that this statement is without foundation and flies in the face of what is known to a skilled artisan since such a person would know that the distillation process actually described by Shin is generally the final "clean-up" employed prior to polymerizing a monomer. Further, Shin DOES NOT recognize, teach or even suggest that there is a desired exo mole percent for material he teaches in Production Example 2 as being obtained in 80% yield via the aforementioned distillation. Still further, Shin DOES NOT even disclose what the endo/exo isomer ratio might be. Therefore, Shin also DOES NOT meet the requirement of a rejection under any section of §102 as stated in MPEP §2131 and must be withdrawn. Such action is earnest requested.

Boardman et al (US 6,358,675)

The Examiner states that Claims 1, 3 and 4 also stand rejected under 35 U.S.C. §102(e) as being clearly anticipated by Boardman et al (US 6,358,675 B1, hereinafter "Boardman"). Applicant traverses.

Applicant assert the argument presented above with respect to Shin as being applicable to Boardman. Thus the Examiner's statement regarding subsequent processing and/or "clean-up" with regard to the monomers of Boardman are just as unfounded for Boardman as Applicant asserted for Shin. This is particularly true for Boardman as Example 8 (bridging cols. 11 and 12) specifically disclose that Boardman purified the crude monomer by column chromatography and then presented NMR data from the purified monomer. Certainly the Examiner knows that such NMR data would be impossible to interpret if the monomer were other then a pure isomer mixture and would not require the "clean-up" suggested. Therefore, Boardman also DOES

NOT meet the requirement of a rejection under any section of §102 as stated in MPEP §2131 and must be withdrawn. Such action is earnestly requested.

Poss et al (2003/0232276)

The Examiner states that Claims 1 and 3-17 stand rejected under 35 U.S.C. §102(e) as being anticipated by Poss et al 2003/0232276 A1, hereinafter "Poss"). Applicant traverses.

Applicant asserts the argument presented above with respect to Shin and Boardman as being applicable to Poss since like Shin and Boardman, Poss provides examples that result in purified monomers that do not require any subsequent processing prior to polymerization. Further, it should be noted that since none of Shin, Boardman or Poss ever mention any need for such subsequent "clean-up" processes, that the Examiner's position that such monomers NEED such processing CANNOT be maintained without providing support for such a position.

Further to this argument, Applicants re-direct the Examiner's attention to that portion of his rejection regarding inherency and reassert that any inference of cited art inherently disclosing or teaching the subject matter recited in Applicants' claims, is inappropriate given Dr. Bell's Declaration and Applicants' statements in the instant application, particularly at paragraph [0013].

Still further, since Poss only mentions, at paragraph [0016], that the compounds of his Formula 1 may exist in isomeric forms where one such form could be endo/exo isomers it is difficult to see how Poss could be said to have recognized that a desired exo mole percent of any of the compounds disclosed therein would have unexpected dissolution properties. Therefore it CANNOT be said that Poss provides a disclosure, teaching or suggestion of those properties as recited in Applicant's Claims 1 and 5 and Claims 2-4 and 6-17 that

depend, respectfully, therefrom. It must follow then that Poss also DOES NOT meet the requirement of a rejection under any section of §102 as stated in MPEP §2131 and must be withdrawn. Such action is earnestly requested.

Goodall et al. (6,136,499)

The Examiner states that Claims 1, 3 and 4 also stand rejected under 35 U.S.C. §102(b) as being anticipated by Goodall et al. (6,136,499), hereinafter "Goodall"). Applicant traverses.

Applicant's Claim 1 recites the limitation of "a polymer having a desired dissolution rate." Claims 3 and 4, depending from Claim 1 also include this limitation. As established by MPEP §2131, for art to anticipate a claim, the art must teach every limitation of that claim. Goodall, does not meet this standard since rather then teaching that the dissolution rate of a photoresist polymer can be altered to a desired dissolution rate through altering the exo mole percent of at least one repeat unit of such a polymer, Goodall teaches the use of an additive referred to as a dissolution inhibitor or enhancer. For example at column 28, lines 60-66 Goodall states that :

> The photoresist compositions of the present invention comprise the disclosed polycyclic compositions, a solvent, and an photosensitive acid generator (photoinitiator). Optionally, a dissolution inhibitor can be added in an amount of up to about 20 weight % of the composition. A suitable dissolution inhibitor is t-butyl cholate (J. V. Crivello et al., Chemically Amplified Electron-Beam Photoresists, Chem. Mater., 1996, 8, 376-381).

Thus Goodall, like Kinsho, Shin, Boardman and Poss, does not recognize, teach or even suggest that there is a desired exo mole percent of at least one repeating unit in a polymer that is greater or less than the expected exo mole percent of the monomer and that by providing such a desired exo mole percent a desired dissolution rate can be obtained. Thus Applicant respectfully asserts that Goodall

CANNOT be said to meet the requirement of §2131 of the MPEP and that any rejection of the claims of the instant application based on §102(b) of the US Code cannot be sustained. Thus withdrawal of the rejection of Claims 1, 3 and 4 based on the teachings of Goodall must be withdrawn. Action to that effect is earnestly sought.

Applicant having responded to each of the rejections to the extent possible, respectfully asserts that Claims 1 and 3-17 are in condition for allowance. If, however the Examiner's next action is anything other than a Notice of Allowance, the Examiner is requested to call the undersigned to schedule a telephonic interview. The undersigned is available during normal business hours, East Coast Time.

Respectfully submitted,

By 

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